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ZIMMERMANN, JOHN P				
ART UNIT		PAPER NUMBER		
2861				
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12/24/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/582,453

Applicant(s)

EVE, RICHARD WILLIAM

Examiner

John P. Zimmermann

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-17 and 21-24 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-4, 6-17, & 21-24 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. With respect to applicant's Amendments to the claims:
 - a. Applicant's amendments to independent **Claims 1, 16 & 17** to include further clarification have been recognized and examined as such.
 - b. Applicant's amendments to dependent **Claims 22 & 24** to address claim objections have been recognized and examined as such.

Claim Objections

2. **Claims 22 & 24** were objected to because of informalities. The amendments to the claims address the objection and it is hereby withdrawn.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

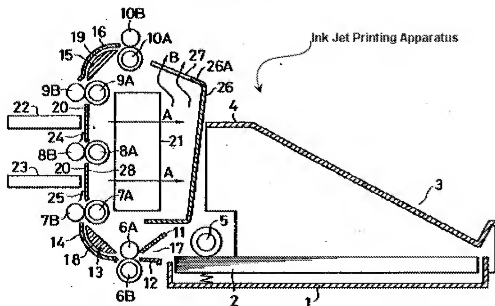
A person shall be entitled to a patent unless –

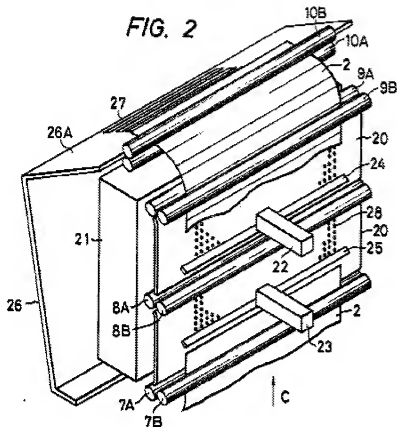
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1, 3-4, 6-7, 10, 14, 23, 16 & 17** are rejected under 35 U.S.C. 102(b) as being clearly anticipated by **Koumura et al.** (US 4,463,361 A).
 - a. As related to independent **claim 1**, Koumura et al. teach an ink jet printing apparatus for printing on a substrate (Koumura et al. – Title; Abstract; and Figure 1, Reference #2 & Arrows, shown below), the printer comprising: a printhead arrangement

including a plurality [i.e. two] of ink jet printheads for emitting droplets towards a surface of the substrate wherein the apparatus is adapted to hold the printheads substantially stationary while droplets are emitted from the printheads (Koumura et al. – Detailed Description, Column 2, Lines 67-68 and Figures 1 & 2, Reference #22 & #23, both shown below); a plurality of rollers arranged to move the substrate past the printheads during the emission of the droplets from the printheads (Koumura et al. – Detailed Description, Column 2, Lines 60-61 and Figures 1 & 2, Reference #7A - #9B both shown below); and the apparatus further includes a pressure source wherein the pressure source is arranged to apply a negative gauge pressure [i.e. a suction] to the substrate to hold the substrate to the rollers in the region of the printhead arrangement (Koumura et al. – Detailed Description, Column 2, Lines 66-67; and Figures 1 & 2, Reference #21, #A & Arrows, both shown below).

FIG. 1





- b. As related to dependent **claim 3**, Koumura et al. teach the limitations of **claim 1** for the reasons above and continue to teach the apparatus includes at least three rollers arranged to move the substrate relative to the printheads (Koumura et al. – Detailed Description, Column 2, Lines 60-61 and Figures 1 & 2, Reference #7A - #9B both shown above).
- c. As related to dependent **claim 4**, Koumura et al. teach the limitations of **claim 1** for the reasons above and continue to teach the rollers are mounted substantially parallel to the adjacent rollers [i.e. rollers are parallel to adjacent rollers] (Koumura et al. – Detailed Description, Column 2, Lines 60-61 and Figure 1, Reference #7A, #8A, #9A - #7B, #8B, & #9B shown above).

- d. As related to dependent **claim 6**, Koumura et al. teach the limitations of **claim 1** for the reasons above and continue to teach the negative gauge pressure [i.e. a suction] is applied to the substrate in a region between adjacent rollers (Koumura et al. – Detailed Description, Column 2, Lines 66-67 and Figure 1, Reference #7A, #8A, #9A, #A & Arrows, shown above).
- e. As related to dependent **claim 7**, Koumura et al. teach the limitations of **claim 1** for the reasons above and continue to teach an element [i.e. suction plate] arranged between the rollers adjacent the substrate (Koumura et al. – Detailed Description, Column 2, Line 65 – Column 3, Line 11 and Figures 1, Reference #7A, #8A, #9A, & #20, shown above).
- f. As related to dependent **claim 10**, Koumura et al. teach the limitations of **claim 1** for the reasons above and continue to teach a guide for guiding a leading edge of the substrate (Koumura et al. – Detailed Description, Column 2, Line 65 – Column 3, Line 11 and Figure 1, Reference #24, #25, & #20, shown above).
- g. As related to dependent **claim 14**, Koumura et al. teach the limitations of **claim 1** for the reasons above and continue to teach the system is adapted to print a color image [i.e. red and/or black] (Koumura et al. – Detailed Description, Column 3, Lines 23-25 and Figure 1, Reference #22, & #23, shown above).
- h. As related to dependent **claim 23**, Koumura et al. teach the limitations of **claim 1** for the reasons above and continue to teach the rollers are substantially non-porous [i.e. the rollers are non-porous] (Koumura et al. – Detailed Description, Column 2, Lines 60-67 and Figure 1, Reference #7A, #8A, #9A, shown above).

- i. As related to independent **claim 16**, Koumura et al. teach a transport device for moving a substrate past printheads in an ink jet printer (Koumura et al. – Title; Abstract; and Figures 2 & 1, Reference Arrows, shown below), the device comprising: a plurality of rollers arranged to move the substrate past the printheads during deposition of droplets on the substrate (Koumura et al. – Detailed Description, Column 2, Lines 60-61 and Figures 1 & 2, Reference #7A - #9B both shown below) and a pressure source wherein the pressure source is arranged to apply a negative gauge pressure [i.e. a suction] to the substrate to hold the substrate to the rollers in the region of the printhead (Koumura et al. – Detailed Description, Column 2, Lines 66-67; and Figures 1 & 2, Reference #21, #A & Arrows, both shown below).

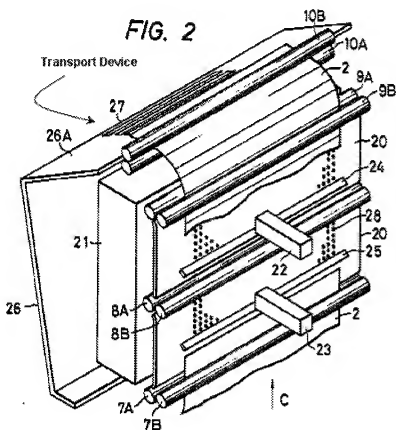
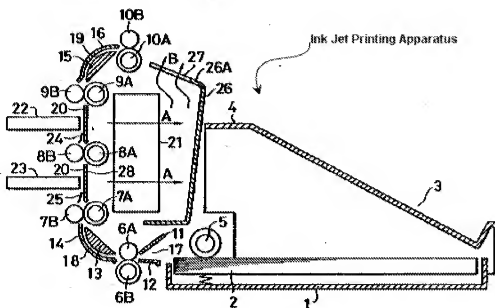


FIG. 1



j. As related to independent **claim 17**, Koumura et al. teach a method of printing a substrate in an ink jet printer (Koumura et al. – Title; Abstract; Detailed Description, Column 3, Line 57 – Column 4, Line 35), comprising: a plurality of ink jet printheads (Koumura et al. – Detailed Description, Column 2, Lines 67-68 and Figures 1 & 2, Reference #22 & #23, both shown above), a plurality of rollers (Koumura et al. – Detailed Description, Column 2, Lines 60-61 and Figures 1 & 2, Reference #7A - #9B both shown above) and a pressure source wherein the substrate is moved on the rollers relative to the printheads during printing while applying a negative gauge pressure [i.e. a suction] to the substrate to hold the substrate to the rollers in the region of the printheads (Koumura et al. – Detailed Description, Column 2, Lines 66-67; and Figures 1 & 2, Reference #21, #A & Arrows, both shown above) wherein the printheads are substantially stationary during emission of droplets towards the substrate.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

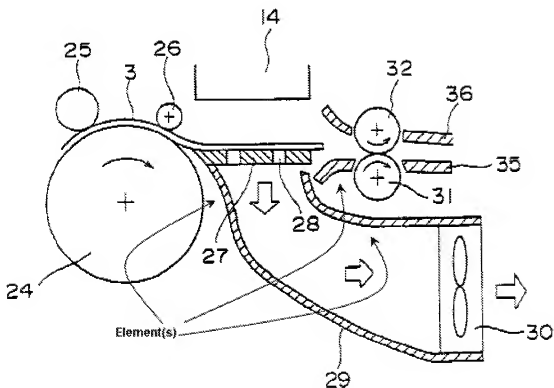
7. **Claims 2, 11 & 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Koumura et al.** (US 4,463,361 A).

a. As related to dependent **claim 2**, Koumura et al. teach the limitations of **claim 1** for the reasons above and continue to teach the apparatus is adapted to print onto the surfaces of a plurality of discrete substrates [i.e. the guides are elastic so they can accommodate a variety of substrates no matter the thickness] (Koumura et al. – Detailed Description, Column 3, Lines 8-11). While the wording is not identical, it would have been obvious to one of ordinary skill in the art at the time of the invention to understand the device as taught by Koumura et al. would not have been limited to anything less than a "plurality of discrete substrates."

- b. As related to dependent **claim 11**, Koumura et al. teach the limitations of **claim 1** for the reasons above and continue to teach the substrate could comprise a variety of materials. While the wording is not identical, it would have been obvious to one of ordinary skill in the art at the time of the invention to understand the device as taught by Koumura et al. would have been capable of printing on a substrate comprising a substantially rigid material [i.e. card stock paper] and would not have been limited to anything less.
 - c. As related to dependent **claim 12**, Koumura et al. teach the limitations of **claim 1** for the reasons above and continue to teach the substrate could comprise a variety of materials. While the wording is not identical, it would have been obvious to one of ordinary skill in the art at the time of the invention to understand the device as taught by Koumura et al. would have been capable of printing on a substrate that when being printed, could be mounted on a deformable surface [i.e. normal paper, or cloth] and would not have been limited to anything less due in part to the function the vacuum, suction plate and rollers were intended to accomplish.
8. **Claims 8-9 & 21-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Koumura et al.** (US 4,463,361 A) and further in view of **Yasui et al.** (US 6,416,176 B1).
- a. As related to dependent **claim 8**, while Koumura et al. teach the limitations of **claim 7** for the reasons above and continue to teach the element could be arranged to restrict airflow (innate characteristic of a suction plate), Koumura et al. *do not* specifically teach restricting airflow between rollers. *However*, Yasui et al. teach an ink-jet printing system with a transport mechanism that includes a plurality of rollers, a

negative gauge pressure source, and an element which is arranged to restrict the airflow between the rollers (Yasui et al. - Title; Abstract; and Figure 2, Reference #14, #24, #31, #29, and Arrows, shown below).

FIG. 2



b. As related to dependent **claim 9**, while Koumura et al. teach the limitations of **claim 7** for the reasons above and continue to teach the element could be arranged to reduce deformation of the substrate (innate characteristic of the edges of the suction plate), Koumura et al. *do not* specifically teach reducing the deformation of the substrate between the rollers. *However*, Yasui et al. teach an ink-jet printing system with a transport mechanism that includes a plurality of rollers, a negative gauge pressure source,

and an element which is arranged to reduce deformation of the substrate between the rollers (Yasui et al. - Title; Abstract; Summary, Column 3, Lines 2-42 and Figure 2, Reference #14, #24, #31, #29, and Arrows, shown above).

c. As related to dependent **claim 21**, while Koumura et al. teach the limitations of **claim 7** for the reasons above Koumura et al. *do not* specifically teach the element arranged to be spaced apart from the substrate. *However*, Yasui et al. teach an ink-jet printing system with a transport mechanism that includes a plurality of rollers, a negative gauge pressure source, and an element which is arranged to be spaced apart from the substrate (Yasui et al. - Title; Abstract; Summary, Column 3, Lines 2-42 and Figure 2, Reference #3, #14, #24, #31, #29, and Arrows, shown above).

d. As related to dependent **claim 22**, while Koumura et al. teach the limitations of **claim 7** for the reasons above Koumura et al. *do not* specifically teach the element is substantially non-porous. *However*, Yasui et al. teach an ink-jet printing system with a transport mechanism that includes a plurality of rollers, a negative gauge pressure source, and an element which is substantially non-porous [i.e. solid or completely non-porous] (Yasui et al. - Title; Abstract; Summary, Column 3, Lines 2-42 and Figure 2, Reference #14, #24, #31, #29, and Arrows, shown above).

Given the same field of endeavor, specifically an ink-jet printing system with a substrate transport mechanism, it is apparent that one of ordinary skill in the art at the time the invention was made would have been motivated to combine the ink jet recording apparatus with a negative gauge pressure source and a plurality of rollers as taught by Koumura et al. with the ink jet recording apparatus with a negative gauge pressure source and a plurality of rollers with the additional arrangement of the element as taught by

Yasui et al., in an effort to provide an ink jet printing system which is effective in maintaining the substrate in a flat condition with respect to the print head (Yasui et al. – Summary, Column 3, Lines 33-36).

9. **Claims 13 & 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Koumura et al. (US 4,463,361 A) and further in view of **Martin et al.** (US 5,255,020 A).

a. As related to dependent **claim 13**, while Koumura et al. teach the limitations of **claim 1** for the reasons above, and the practice of printing at extremely high speeds is well known and documented in the art, Koumura et al. *do not* specifically teach moving the substrate at a speed greater than 1m/s. *However*, Martin et al. teach a printing assembly which uses negative gauge pressure to maintain the substrate a set distance from the printing nozzles while moving the substrate at a speed greater than 1m/s [i.e. a plurality of meters per second] (Martin et al. – Title; Abstract; Specification, Column 1, Lines 25-30).

b. As related to dependent **claim 15**, while Koumura et al. teach the limitations of **claim 1** for the reasons above, and the practice of printing at high resolutions is well known and documented in the art, Koumura et al. *do not* specifically teach printing an image having a resolution of greater than 120 dip. *However*, Martin et al. teach a printing assembly which uses negative gauge pressure to maintain the substrate a set distance from the printing nozzles while printing an image having a resolution of greater than 120 dpi [i.e. 150 dpi] (Martin et al. – Title; Abstract; Specification, Column 1, Lines 30-32 and Column 3, Line 54).

Given the same field of endeavor, specifically an ink-jet printing system with a substrate transport mechanism, it is apparent that one of ordinary skill in the art at the time the invention was made would have been motivated to combine the ink jet recording apparatus with a negative gauge pressure source and the desire to follow the practice in the art at the time of the invention, that being to increase throughput and print resolution as taught by Koumura et al. with the ink jet recording apparatus with a negative gauge pressure source as taught by Martin et al., in an effort to control accurately the distance between the nozzles and the surface of the media and the emission of the ink drops as a function of the advance of the paper (Martin et al. – Specification, Column 1, Lines 33-40).

10. **Claim 24** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Koumura et al.** (US 4,463,361 A) and further in view of **Greive** (US 6,834,949 B2).

While Koumura et al. teach the limitations of **claim 1** for the reasons above and continue to teach no roller is contacting the surface of the substrate in the immediate area of printing (Koumura et al. – Figure 1, Reference #22, #23, #7B, #8B, #9B, shown previously), Koumura et al. *do not* specifically teach no roller is arranged so as to contact the surface of the substrate to be printed. *However*, Greive clearly teaches a device for holding a substrate, moving a substrate, and printing the substrate with a plurality of rollers and a negative gauge pressure applicator, with an arrangement such that no roller is arranged so as to contact the surface of the substrate to be printed (Greive - Title; Abstract; Description, Column 6, Lines 5-31; and Figure 1, Reference #1, #2, and Airflow Arrows, shown below). Given the same field of endeavor, specifically an ink-jet printing system with a negative pressure substrate transport mechanism, it is apparent that one of ordinary skill in the art at the time the invention was made would have been

motivated to combine the ink jet recording apparatus with a negative gauge pressure source as taught by Koumura et al. with the ink jet recording apparatus with a negative gauge pressure source as taught by Grieve, in an effort to control accurately the distance between the nozzles and the surface of the media (Grieve – Summary, Column 3, Lines 28-31) and prevent premature contact with newly recorded image, allowing further drying time and providing a higher quality image.

Response to Arguments

11. Applicant's arguments filed 11 September 2008 have been fully considered but they are not persuasive.
12. With respect to **claim 1**, and therefore **claims 2-4, 6-16, & 21-24**, which inherently contain all of the limitations of independent **claim 1**, applicant amended the independent claim to add further clarification and more clearly point out the claimed subject matter. Applicant did not amend the claim to further limit them and therefore no new ground(s) of rejection were needed. Applicant argued that "Koumura does not appear to disclose that the printheads are stationary while emitting ink," and "Koumura at best appears to show the printer operates by moving the substrate... while moving the recording means," and "if images wider than the width of the recording heads 22, 23 were to be printed, then the paper 2..." In response to Applicant's argument that "Koumura does not appear to disclose that the printheads are stationary while emitting ink," a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the

intended use, then it meets the claim. In this case Koumura et al. could print an image the width of the printhead as displayed plus a increased width with proper deflection of the droplets while remaining stationary. In response to Applicant's argument that "Koumura at best appears to show the printer operates by moving the substrate... while moving the recording means," Examiner respectfully points out that Koumura et al. actually "at best" teaches holding the printhead substantially stationary while droplets are emitted from the printheads and that could include any of the argued but not claimed embodiments (Applicant's Remarks , 11SEP08, Page 8). For the sake of clarity, the claimed limitation merely is to emission of droplets from the substantially stationary printheads, Koumura et al. clearly teaches the ability to emit a plurality of droplets from the printheads in the broadest interpretation of the claim, this would merely need to be a single drop width as the substrate is moved past the printheads. In response to applicant's argument that "if images wider than the width of the recording heads 22, 23 were to be printed, then the paper 2..." in other words the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., printing images wider than the width of the recording heads) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). As no further arguments were made, less argument relating to dependent **claim 11**, discussed below, all dependent claims have been rejected accordingly.

13. With respect to **claims 16-17** Applicant merely argues "distinguishing features similar to those of claim 1," therefore the rejection stands as put forth in the previous rejection and reiterated above.

14. With respect to **claim 11**, Applicant argues that “the apparatus of Koumura could not be used to print onto rigid boards... they could not be bent to follow the required substrate path.” In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., print on rigid boards, for example... as they could not be bent...) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). As put forth in the previous rejection and reiterated above, substantially rigid material includes cardstock paper which can bend to follow the required substrate path, as can lightweight cardboard and other "substantially" rigid materials.

15. Finally, with respect to Applicant's overarching argument that “one of ordinary skill in the art seeking to improve a printing system... would not consider and further be motivated to modify Koumura...” Examiner respectfully directs the Applicant to Applicant's presented prior art of record, Kitahara et al. (US 2002/0018097 A1). Kitahara et al. teach a printer with a transportation system that includes negative pressure application to retain the substrate to the conveyance mechanism past a plurality of printheads that are adapted to be held stationary while droplets of ink are emitted therefrom. The desire to provide a wider print area than the printheads of Koumura et al. teach would be motivation enough to combine the two, if the claimed limitations were further amended to require such a combination.

Conclusion

16. ***Examiner's Note:*** Examiner has cited particular Figures & Reference Numbers, Columns, Paragraphs and Line Numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Zimmermann whose telephone number is (571)270-3049. The examiner can normally be reached on Monday - Thursday, 7:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on 571-272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LUU MATTHEW/
Supervisory Patent Examiner, Art Unit 2861


JPZ